




## EDUCATIONAL TECHNOLOGIES FOR FAMILY CAREGIVERS OF CHILDREN AND ADOLESCENTS WITH MOTOR DISABILITIES: AN INTEGRATIVE REVIEW

### TECNOLOGIAS EDUCACIONAIS PARA CUIDADORES FAMILIARES DE CRIANÇAS E ADOLESCENTES COM DEFICIÊNCIA MOTORA: REVISÃO INTEGRATIVA

### TECNOLOGÍAS EDUCATIVAS PARA CUIDADORES FAMILIARES DE NIÑOS Y ADOLESCENTES CON DISCAPACIDAD MOTORA: UNA REVISIÓN INTEGRADORA

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#### ABSTRACT

**Objective:** to identify and describe educational technologies aimed at family caregivers of children and adolescents with motor disabilities presented in the specialized literature. **Method:** an integrative literature review study was carried out in VHL, LILACS, MEDLINE, Pubmed, and SciELO databases, between 2011 and 2021, in Portuguese, English, and Spanish, using the descriptors caregivers, educational technology, disability, physical disability, handicap, and health education. The articles were analyzed through reflective and careful reading about the main information and elements that make up the study's theme. **Results:** twenty-five studies were included, six of which were from 2020; 15 were produced in Brazil; and 13 were found in SciELO. Booklets were the most common educational technology, followed by groups of caregivers; nurses were the most frequent creators of technologies, and the construction/validation processes were described only by a few part of the studies. **Conclusion:** the identified educational technologies promoted the development of satisfactory knowledge, skills and attitudes of family caregivers of children and adolescents with motor disabilities.

**Descriptors:** Educational technology; Family caregivers; Motor disability; Children and adolescents; Health education.

#### RESUMO

**Objetivo:** identificar e descrever as tecnologias educacionais direcionadas a cuidadores familiares de crianças e adolescentes com deficiência motora apresentadas pela literatura especializada. **Método:** estudo bibliográfico, do tipo revisão integrativa da literatura, realizada nas bases de dados BVS, LILACS, MEDLINE, PubMed e SciELO, entre 2011 e 2021, em português, inglês e espanhol, utilizando-se os descritores *caregivers*, *educational technology*, *disability*, *physical disability*, *handicap* e *health education*. Os artigos foram analisados pela leitura reflexiva e criteriosa acerca das principais informações e elementos que compõem a temática nos estudos. **Resultados:** incluíram-se 25 estudos, sendo seis do ano de 2020; 15 produzidos no Brasil; 13 encontrados na SciELO. As cartilhas foram a tecnologia educacional mais encontrada, seguida da formação de grupos de cuidadores; sendo o enfermeiro

o profissional aplicador/criador mais frequente e os processos de construção/validação estiveram presentes na menor parte dos estudos. **Conclusão:** as tecnologias educacionais identificadas promoveram o desenvolvimento de conhecimentos, habilidades e atitudes mais satisfatórias dos cuidadores familiares de crianças e adolescentes com deficiência motora.

**Descritores:** Tecnologia educacional; Cuidadores familiares; Deficiência motora; Crianças e adolescentes; Educação em saúde.

RESUMEN

**Objetivo:** identificar y describir tecnologías educativas dirigidas a cuidadores familiares de niños y adolescentes con discapacidad motora presentadas en la literatura especializada. **Método:** se realizó un estudio de revisión bibliográfica en las bases de datos BVS, LILACS, MEDLINE, PubMed y SciELO, entre 2011 y 2021, en portugués, inglés y español, utilizando los descriptores *caregivers, educational technology, disability, physical disability, handicap y health education*. Los artículos fueron analizados a través de una lectura reflexiva sobre las principales informaciones y elementos que componen el tema del estudio. **Resultados:** se incluyeron veinticinco estudios, seis eran de 2020; 15 fueron producidos en Brasil; y 13 fueron encontrados en SciELO. Los cuadernillos fueron la tecnología educativa más común, seguidos por grupos de cuidadores; los enfermeros fueron los creadores de tecnologías más frecuentes, y los procesos de construcción/validación fueron descritos sólo por una pequeña parte de los estudios. **Conclusión:** las tecnologías educativas identificadas promovieron el desarrollo de conocimientos, habilidades y actitudes satisfactorias de cuidadores familiares de niños y adolescentes con discapacidad motora.

**Descriptores:** Tecnología educativa; Cuidadores familiares; Discapacidad motora; Niños y adolescentes; Educación para la salud.

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INTRODUCTION

The birth of a baby with a disability promotes unexpected changes in the family dynamics, which go through the impact of the news of the diagnosis and culminate in the process of adaptation to the daily implications associated with the limitations that the child presents, constituting steps that can be helped with the use of Educational Technologies (ET).<sup>1,2</sup> It is estimated that, in Brazil, the number of persons over two years of age with some motor disability is around 7.8 million.<sup>3</sup>

According to the United Nations (UN), persons with disabilities (PWD) are those who "have long-term impairments, which may be of a physical, mental, intellectual or sensory nature, which, in interaction with various barriers, may compromise the full and effective participation in society on an equal basis with others" .<sup>4</sup> The concept of PWD, therefore, encompasses the domains of the International Classification of Functioning, Disability, and Health (ICF), concerning body structure and function (disability), activity (activity limitation), and social participation (participation restriction).<sup>5</sup>

Due to the compromise in these domains, the child/adolescent with motor disability will need assistance daily, which means that they will need a caregiver to help or perform the activities of daily living (ADL). According to the Brazilian Classification of Occupations (CBO), the caregiver's activities involve helping with locomotion, performing postural changes, stimulating leisure and occupational activities, and helping with hygiene and nutrition.<sup>6</sup>

The role of the caregiver can be paid (formal caregiver) or unpaid (informal caregiver). The latter does not have an employment relationship, is usually a family member, does not have the technical training to perform the function, and, in most cases, lives in the same place as the person who is cared for.<sup>6</sup> To exemplify the majority presence of family caregivers of children/adolescents with motor disabilities, a study conducted in the city of João Pessoa (PB), Brazil, found that 68.3% of caregivers of people with disabilities were mothers, and only 9.9% were not part of the family.<sup>7</sup>

Authors of studies on family caregivers of people with disabilities are often concerned with the burden, quality of life, and mental health, as this is a practically uninterrupted occupation with a high emotional burden since some children and adolescents have chronic health impairments.<sup>8</sup> When comparing the average level of anxiety and depression among parents of children with motor disabilities and parents of children without disabilities, it was observed that parents of children with disabilities presented higher anxiety scores associated with lack of social support, parental dissatisfaction, unfavorable family economic situation, and difficult living conditions.<sup>9</sup>

In general terms, research agrees that it is necessary to think about public policies and develop tools that enable caregivers to face the adversities that are part of their daily lives. In this sense, ETs can facilitate access to information, which will contribute to better coping with adversities by caregivers, whether related to the caregiver himself or referring to the people under his care.<sup>2</sup>

Educational technology (ET) in health can be understood as an instrument that facilitates learning, involving the stages of planning, execution, control, and follow-up for formal and informal educational processes.<sup>10</sup> The health professional interacts in this teaching-learning process with the student (client), so the two build means to develop creative awareness, sensitivity, and creativity in pursuing personal and professional development.<sup>11</sup>

In this regard, health interventions based on the use of ET are promising alternatives to improve the quality of life of family caregivers and, consequently, improve the act of caring.<sup>12,13</sup> They can also improve the interaction/communication between the team of health professionals and family caregivers, favoring the execution of activities at home.<sup>14</sup>

Therefore, this study is justified by the need to know, from the scientific production, the main ET used with family caregivers of children/adolescents with motor disabilities so that they become more visible and used by professionals (nurses, physiotherapists, etc.) in health education activities, seeking to improve the act of caring and the quality of life of caregivers.

## OBJECTIVES

To identify and describe educational technologies aimed at family caregivers of children and adolescents with motor disabilities presented in the specialized literature.

## METHOD

This is an integrative literature review. This method allowed us to identify and describe studies about ET created for family caregivers of children and adolescents with motor disabilities. The integrative literature review is one of the most comprehensive review approaches, as it allows the inclusion of different study designs, combining data from the theoretical and empirical literature. The integrative literature review admits to incorporating a review of theories and evidence in addition to an analysis of methodological problems of a particular topic.<sup>15</sup>

The following steps were followed during the development of this review: (a) formulation of the question/problem; (b) study selection; (c) critical evaluation of the studies; (d) data collection; (e) data analysis and presentation; (f) data interpretation; and (g) review improvement and update.<sup>16</sup>

In the first stage, the central question was formulated using the PVO framework, in which P refers to the problem situation, participants or context; V refers to the variables; and O to the outcome. This framework allows organizing the study elements to better structure research questions.<sup>17</sup> The following question was constructed from the PVO framework: What educational technologies aimed at family caregivers of children and adolescents with motor disabilities exist? The following structure was considered: P (problem situation, participants or context) – family caregivers; V (variable) – educational technologies (ET); and O (outcome) – identification of educational technologies (ET) aimed at family caregivers of children and adolescents with motor disabilities.

Step 2 (study selection) involved defining some descriptors related to the topic. In this step, the authors based themselves on the components of the PVO framework and, subsequently, consulted the Health Sciences Descriptors (DECS). Thus, the following terms were used: Caregivers, Educational Technology, Disability, Physical Disability, Handicap, and Health Education.

With the choice of descriptors, search strategies were constructed to be used in the databases, applying the Boolean operator AND to cross the PVO components and search for terms in titles and abstracts.

The searches were conducted in the Virtual Health Library (VHL): Medical Literature Analysis and Retrieval System Online (MEDLINE), Latin American and Caribbean Health Sciences Literature (LILACS), PubMed, and SciELO, between October and December 2021, through remote access provided by the Federal University of Pará (UFPA). The choice of these databases is justified by their scope of coverage and impact on scientific production in health.

The evaluation of the articles (third stage) was conducted based on the following inclusion criteria: having one of the following terms in the title or abstract: caregivers, educational technology, disability, physical disability, health education, or handicap; complete and available articles; having been published in the last 10 years (2011 to 2021); articles written in English, Portuguese or Spanish; peer-reviewed articles; articles freely accessible; and articles focused on family caregivers of children and adolescents with motor disabilities. Records that did not meet the inclusion criteria mentioned above were excluded. The searches resulted in 25 articles that met the predetermined inclusion criteria.

Data were collected from the articles based on the main characteristics (fourth stage): year; title; authors; journal; study design; objective; methodology; main results; and conclusions. Data were extracted using a script containing detailed information on each study. Thus, for data collection and analysis (fifth stage), the software Excel 2010 was used.

After organizing and analyzing the data, the process of interpreting the information was carried out, and subsequently, the construction and improvement of the integrative review (sixth and seventh stages) proceeded.

The analyzed information was categorized to respond to the purpose of the study and the guiding question. Two categories were created: 1) general characteristics of the reviewed studies (year, country of publication, authors' names, title, and database), and 2) characteristics of the ETs (types of ET, characteristics of the ET applicator and those who were benefited by the ET, and structuring of the ET: control group, stages of construction and validation).

## RESULTS

Initial searches in selected databases allowed locating of 2,073 publications. After applying the selection and eligibility criteria, the database comprised 25 articles for analysis (Figure 1).

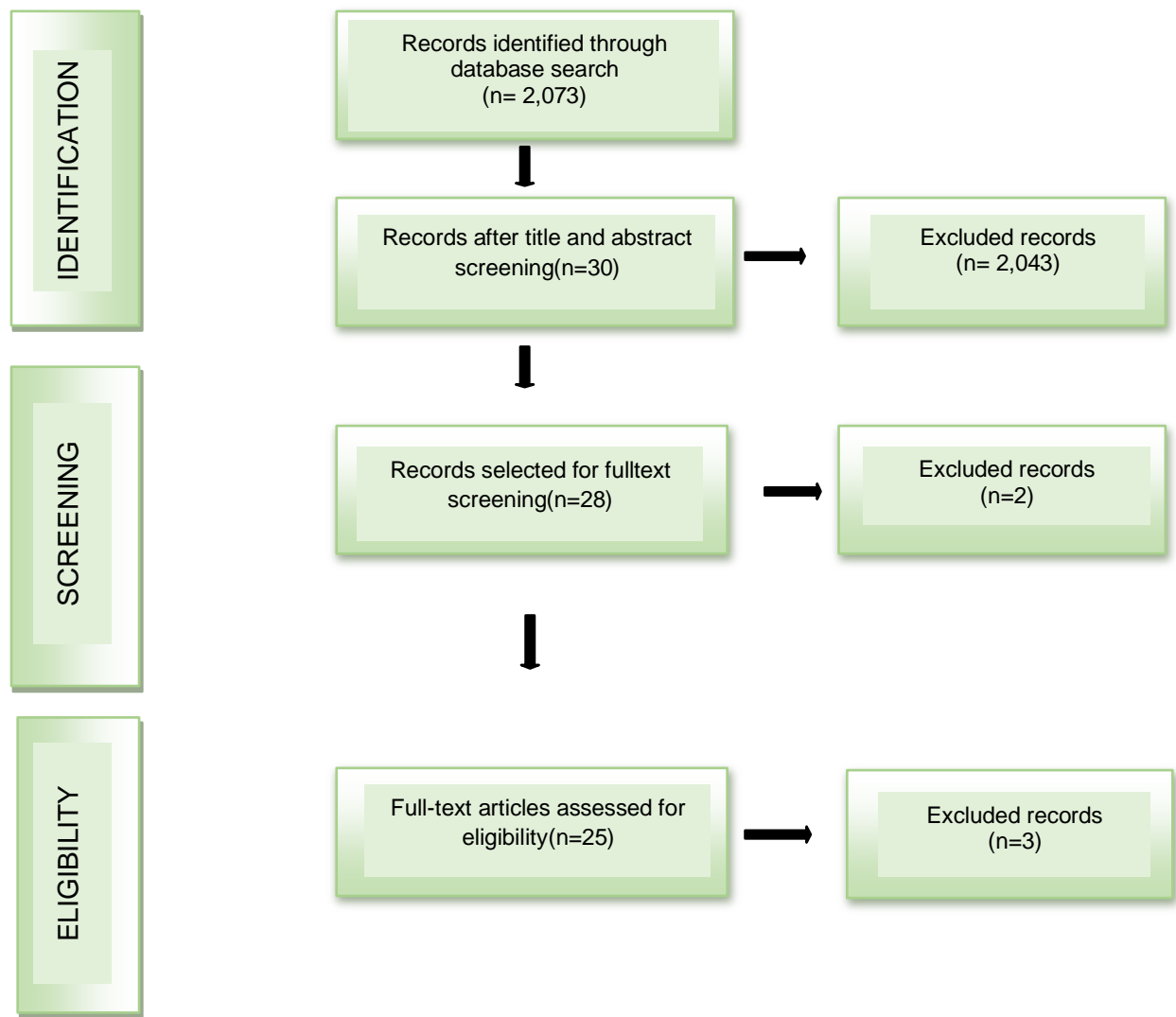


Figure 1. Study selection flowchart. Belém (PA), Brazil, 2021.

The results were organized into two broad categories: general characteristics of the analyzed studies and ET characteristics.

### 1. General characteristics of the analyzed studies

In Figure 2, the general characteristics are observed: year, country of publication, authors' names, title, and database.

Twenty-five articles published between 2011 and 2021 were analyzed, distributed by year as follows: 2011 - one study (4%); 2012 - two studies (8%); 2013 - two studies (8%); 2014 - one study (4%); 2016 - one study (4%); 2017 - two studies (8%); 2018 - three studies (12%); 2019 - four studies (16%); 2020 - six studies (24%); and 2021 - three studies (12%).

Concerning the countries of origin of the selected studies, 15 publications (60%) came from Brazil; three publications (12%) from the United States of America; two (8%) from the UK; and one of each (4%) from Portugal, Spain, South Africa, Chile, and Sweden, demonstrating the attention to this theme in the Brazilian research scenario.

Concerning the database variable, 13 articles (52%) were found in SciELO; eight (32%) in PubMed;

three (12%) in the Virtual Health Library (VHL), and one (4%) in LILACS.

Items	Years and countries	Authors	Titles	Databases
1.	2011-Portugal	Pavão, Silva, Rocha. <sup>18</sup>	The effect of in-home instruction on the functional performance of children with special needs.	SciELO
2.	2012-USA	Benn, Akiva, Arel, Roeser. <sup>19</sup>	Mindfulness Training Effects for Parents and Educators of Children With Special Needs.	PubMed
3.	2012-Brazil	Cardoso, Felipe, Nunes, Padilha. <sup>20</sup>	Oral health home program for children and teenagers with cerebral palsy.	SciELO
4.	2013-Brazil	Carvalho, Chiari, Gonçalves. <sup>21</sup>	Impact of an educational program on the feeding of neurologically impaired children.	SciELO
5.	2013-Brazil	Limongi, Lima-Alvarez, Cunha, Tuddella. <sup>22</sup>	Impact of a program of guidance to caregivers in functional skills, level of caregiver assistance, and modifications in the environment of children with neuromotor limitations.	VHL
6.	2014-Spain	Lazcano, Cura, Aranda, Heras, Elizondo, Garza. <sup>23</sup>	Impact of a psychosocial intervention in caregiver burden of children with cerebral palsy.	PubMed
7.	2016-Brazil	Oliveira, Rena, Mendonça, Pereira, Jesus, Merighi. <sup>24</sup>	The operative group as a care learning tool for mothers of children with disabilities.	SciELO
8.	2017-Brazil	Andrade, Elpidio de Sá, Frota, Cardoso, Carleial. <sup>25</sup>	Interventions of health education in mothers of children with cerebral palsy.	SciELO
9.	2017-Brazil	Martins, Sandoval. <sup>26</sup>	Influência de um programa de orientação fisioterapêutica no saber de cuidadores de crianças com paralisia cerebral.	VHL
10.	2018-United Kingdom	Borek, McDonald, Fredlund, Bjornstad, Logan, Morris. <sup>27</sup>	Healthy Parent Carers programme: development and feasibility of a novel group-based health-promotion intervention.	PubMed
11.	2018-Brazil	Lima, Blanes, Ferreira, Gomes. <sup>28</sup>	Child care educational manual with gastrostomy: construction and validation.	SciELO
12.	2018-USA	Zuurmond, O'Banion, Gladstone, Carsamar, Kerac, Baltussen, et al. <sup>29</sup>	Evaluating the impact of a community-based parent training programme for children with cerebral palsy in Ghana.	PubMed
13.	2019-South Africa	Van Aswegen, Myezwa, Potterton, Stewart. <sup>30</sup>	The effect of the Hambisela programme on stress levels and quality of life of primary caregivers of children with cerebral palsy: A pilot study.	SciELO
14.	2019-Brazil	Caldas, Dias, Sousa, Teixeira. <sup>31</sup>	Creative and sensitive production of care-educational technology for families of children with gastrostomy.	SciELO
15.	2019-Brazil	Souza, Knobel. <sup>32</sup>	Guia ilustrado de orientações a cuidadores de crianças com deficiências neuromotoras.	LILACS
16.	2019-United Kingdom	Zuurmond, Nyante, Baltussen, Seeley, Abanga, Shakespeare, et al. <sup>33</sup>	A support programme for caregivers of children with disabilities in Ghana: Understanding the impact on the wellbeing of caregivers.	PubMed
17.	2020-USA	Bunning, Gona, Newton, Andrews, Blazey, Ruddock, et al. <sup>34</sup>	Empowering self-help groups for caregivers of children with disabilities in Kilifi, Kenya: Impacts and their underlying mechanisms.	PubMed
18.	2020-Brazil	Oliveira, Barbosa, Pitombeira, Chaves, Carvalho. <sup>35</sup>	Educational technology for caregivers of children and teenagers dependent on special care in the home.	VHL
19.	2020-Brazil	Precce, Moraes. <sup>36</sup>	Educative process with relatives of children with special health needs in the hospital-home transition.	SciELO
20.	2020-Brazil	Rodrigues, Santos, Gomes, Silva, Chaves. <sup>37</sup>	Construction and validation of an educational booklet on care for children with gastrostomy	SciELO
21.	2020-Brazil	Silva, Pina, Rocha, Anders, Souza, Okido. <sup>38</sup>	Training of caregivers of children with special healthcare needs: simulation contribution.	SciELO
22.	2020-Brazil	Wingo, Yang, Davis, Hopson, Thirumalai, Rimmer. <sup>39</sup>	Lessons learned from a blended telephone/e-health platform for caregivers in promoting physical activity and nutrition in children with a mobility disability	PubMed
23.	2021-Chile	Bem, Santos, Lima, Nascimento, Veras, Silva. <sup>40</sup>	Effectiveness and legitimacy of the motivational interviewing with caregivers on the oral health of special patients.	SciELO
24.	2021-Sweden	Marella, Koolmees, Vongvilay, Frank, Pryor, Smith. <sup>41</sup>	Development of a digital case management tool for community based inclusive development program.	PubMed
25.	2021-Brazil	Soares, Rêgo, Rodrigues, Cardoso, Rossaneis, Carreira, et al. <sup>42</sup>	Construction and validation of self-care educational technology for informal caregivers.	SciELO

Figure 2. Distribution of scientific publications included in the integrative review, according to year and country of publication, authors' names, title, and database. Belém (PA), Brazil, 2021.

2. ET characteristics

The analysis of the ETs made it possible to categorize the data found into types of ET, profession of the ET applicator/creator, characteristics of the caregivers benefited by the ET, and composition of the ET (control group, stages of construction, and validation).

ET types	Frequency	Percentage	Applicator/creator	Frequency	Percentage
Booklet/manual/ Illustrated guide	8	32	Nurse	8	32
Caregiver group	7	28	Physiotherapist	7	28
Lecture	5	20	Dentist	2	8
Practical training	4	16	Speech therapist	1	4
Digital tool	1	4	No registry	7	28

Figure 3. Distribution of ET type and profession of the applicator/creator. Belém (PA), Brazil, 2022.

Five different types of ET were identified: 1) booklet/manual/illustrated guide, found in eight studies (32%); 2) groups of caregivers, present in seven studies (28%); 3) lecture, identified in five studies (20%); 4) practical training, approached by four studies (16%); and 5) digital tool, found in one study (4%), as shown in Figure 3.

Concerning the applicator/creator of the ET, the presence of nurses was found in eight studies (32%); the physiotherapist in seven studies (28%); the dentist in two studies (8%); the speech therapist in one study (4%); and no information on the professional who created the technology was found in seven studies (28%), as shown in Figure 3.

The target audience of the analyzed studies were family caregivers of children/adolescents with motor disabilities. It is noted that the gender of these caregivers was identified in sixteen studies (64%), and in seven (43.7%), the sample was composed only of female caregivers. No reference to the gender of caregivers was found in nine studies (36%), as shown in Figure 4.

The number of caregivers participating in the selected studies was categorized into four numerical intervals: one to ten caregivers - eight studies (32%); eleven to fifty caregivers - thirteen studies (52%); over fifty-one - three studies; and no registration of the number of participants in one study, as shown in Figure 4.

Gender of the care-giver	Frequency	Percentage	Number of caregivers	Frequency	Percentage
Yes	16	64	1-10	8	32
No	9	36	11-50	13	52
			Over 51	3	12
			No registry	1	4
Gender of the care-giver					
Female only	7	43.8			
Female and male	9	56.2			

Figure 4. Distribution of caregiver gender identification and number of caregivers in the studies. Belém (PA), Brazil, 2022.

By analyzing the articles, it was inferred that the structuring processes of the ET, such as the use of a control group, construction, or validation of the ET, were present as follows: a control group was evidenced in six studies (24%); in nine studies (36%), an ET was built, and of these, seven (28%)

described the process used in the construction; and the validation process was presented by four articles (16%), as shown in Figure 5.

Control group	Frequency	Percentage	ET Construc- tion	Frequency	Percentage	Validation	Frequency	Percentage
Yes	6	24	Yes	9	36	Yes	4	16
No	19	76	No	16	64	No	21	84
Construction stages								
				Yes	7	77.8		
				No	2	22.2		

Figure 5. ET structure: control group, construction, and validation of the ET. Belém (PA), Brazil, 2022.

DISCUSSION

This review aimed to identify and analyze educational technologies aimed at family caregivers of children and adolescents with motor disabilities. The searches allowed the construction of a database with 25 articles published in the last 10 years.

The ET consists of tools capable of promoting greater engagement in care, a better understanding of the pathology of the child/adolescent, and support for the self-care of informal caregivers, which can lead to changes in behavior and new outcomes.<sup>43</sup> The impact of ET is associated with the principles and practices of communication involved in the processes of elaboration and application.<sup>44</sup>

Booklets are educational materials created to facilitate access to information for people from different socio-cultural contexts and levels of education.<sup>45</sup> In general terms, different theoretical models mark the creation of booklets. Some of these materials can be organized based on traditional biomedical practice, while others can be based on a constructivist model of knowledge, which encourages the user's active participation, so that knowledge is shared horizontally, dialogically, and in a participative manner. In this perspective, the elaboration of booklets needs to be based on the adaptation of scientific knowledge on messages that are easy to understand so that the target audience can widely use them.<sup>46</sup>

The construction and validation of a booklet for family caregivers of children with cerebral palsy in Rio Grande do Sul comprised a step in which the target public was consulted, so that the content addressed was related to the identified health education needs. The booklet included psychological aspects of mothers and family members who experience the process of caring for children with cerebral palsy through information about the pathology, support network, mental health of caregivers, and specialized services in the city.<sup>47</sup>

The nurse's presence in the use of ET is understood because, as established by art. 11, item II, of the Law nº 7498/86, which regulates the exercise of this profession, health education is defined as a nursing activity carried out by the nurse as a health team member, aiming at improving the population's health.<sup>48</sup> The prevalence of this professional in the studies analyzed in this review occurred partly due to the presence of patients and caregivers in the various areas of health services, including guidance and planning of actions that promote health education.<sup>10</sup>

Over the years, there has been an increase in the production of ET by these professionals, whether light, light-heavy and heavy, covering care and management ET, leading the nurse to the role of educator.<sup>49</sup> As perceived, a study developed in Portugal, which aimed to identify interventions by nurses in the home context as a way to train the person and informal caregivers in the disease management process, found that this professional acts in the training of the person and the caregiver to carry out daily living activities, identifying architectural barriers and proposing their elimination, maintaining a safe environment and monitoring the condition of disabled people.<sup>50</sup>

The interval with an n between 11 and 50 caregivers is acceptable since for clinical-epidemiological or experimental investigative studies, which aim to describe phenomena or compare the behavior of variables in subgroups of a population, it is not necessary to study the population universe, as this is not accessible or feasible, but mainly because this is not necessary when a representative sample is available to make inferences to the target population.<sup>51</sup> Additionally, given the data saturation, it is considered unnecessary to collect new interviews/ information.<sup>52</sup>

Studies with more than 50 participants indicate that the articles have arguments in favor of generalization but are careful with constructing future propositions.<sup>52</sup> Corroborating this assumption, a study conducted in the state of Pernambuco with 94 mothers/caregivers evaluated the oral health care of children/adolescents with cerebral palsy and found that there are problems related to daily oral health care that can be faced with comprehensive, inclusive and equitable socioeconomic and public health policies.<sup>53</sup>

An eminently female sample corroborates that caring is seen socially as natural for women, who often experience work abandonment and overload regarding caring for people with disabilities and household activities.<sup>54,55</sup> Given the above, one study that aimed to understand how the woman-mother of a child/adolescent with cerebral palsy takes care of herself, concluded that caregivers need strategies capable of facilitating these women to take care of themselves, helping them in the process of adapting to the new situation and taking care of their children/adolescents.<sup>56</sup>

The absence of a control group in the analyzed studies reveals that the studies are not randomized, that is, in which each individual has an equal or known probability of belonging to any of the groups, eliminating trends related to attributes that may affect the outcome variable.<sup>57</sup> This was done in one study that proposed an intervention to reduce the emotional problems of 25 mothers of children with cerebral palsy. The intervention enable the mothers to deal with their children's behavioral problems, as there was a significant decrease in mothers' emotional problems and the intervention was proven clinically effective.<sup>58</sup>

The process of creating an ET with the involvement of the target audience provokes ever greater adherence and confidence in the multiplication of content. When these products are creative, they generate appreciation for developing innovative methodologies, which help improve communication, health, and community outcomes.<sup>59</sup> This step was well defined in a study that described the construction of an educational product in video format with stimulation activities for caregivers of children with disabilities, whose result was a video with 1 minute and 53 seconds, emphasizing interaction actions between children and caregivers.<sup>60</sup>

Additionally, the validation stage consists of the analysis and judgment of specialists, also called "analysis by judges and target audience", which is considered one of the most used methods for validating the pertinence, reliability, and consistency of a material.<sup>61</sup> This method was used in a study that aimed to validate the content of a booklet called "Guidelines for maintaining the quality of life-spina bifida", whose authors analyzed the adherence to the proposed activities. The booklet proved to be a great resource to increase adherence to physiotherapeutic treatment of children and adolescents with spina bifida. However, the authors found a moderate/low adherence by participants.<sup>62</sup>

The use of ET by caregivers of children/adolescents with motor disabilities proves to be very important in the development of health education, as it aims to go beyond the traditional methods towards the axis of the production of autonomy and knowledge, in which they become protagonists in educational practices. One of the limitations of this study is the short description of the construction processes of the analyzed technologies, making it impossible to understand their suitability for promoting the health of adolescents, as well as the lack of quasi-experimental studies that use these technologies, demonstrating their effectiveness.

Despite the contributions, this study has limitations, such as the small search interval. Possibly, by extending the search period, other ETs could be identified, covering a larger scope of forms and types of technology. Another limiting factor was the scarcity of studies describing the construction and validation processes of the analyzed technologies, making it impossible to understand their suitability for health promotion and prevention of harm to caregivers.

**CONCLUSION**

ETs for health promotion present a wide spectrum of possibilities, with printed materials and groups of caregivers being the main types, permeating health services and daily use. The recommendations and use of these technologies effectively ensure the development of adequate knowledge, skills, and attitudes.

The study contributes to synthesizing technologies constructed and adopted by family caregivers of children/adolescents with motor disabilities, enabling health professionals to learn about the most adopted technologies and the themes they address. Thus, the adoption of technologies for health promotion is enhanced, listing the possibilities, and pointing out gaps in the production of these tools.

**AUTHORS' CONTRIBUTIONS**

Conception, study planning, data analysis and interpretation, writing and critical review: Tatiane Oliveira Nascimento, Yuri Leandro do Carmo de Souza, and Simone Souza da Costa Silva.

Study planning and critical review: Rodolfo Gomes do Nascimento and Katiane da Costa Cunha.

**CONFLICTS OF INTEREST**

The authors declare that there is no conflict of interest.

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**REFERENCES**

- 1 Santos BA, Milbrath VM, Freitag VL, Nunes NJS, Gabatz RI, Silva MS. O impacto do diagnóstico de paralisia cerebral na perspectiva da família. REME. 2019; 23. DOI: <https://doi.org/10.5935/1415-2762.20190035>
- 2 Monte L, Andrade GDC, Magalhães JLB, Silva TJP, Cárdenas AMC, Silva MP, Uchôa MBR, Nascimento RO, Nemer CRB, Hage-Melim LIS. Caracterização e qualidade de vida de cuidadores familiares: proposta de tecnologia educacional. REAS. 2020; 53. DOI: <https://doi.org/10.25248/reas.e3551.2020>
- 3 Instituto Brasileiro de Geografia e Estatística (BR), Pesquisa nacional de saúde: 2019: ciclos de vida: Brasil / Coordenação de Trabalho e Rendimento. Rio de Janeiro: IBGE, 2021. 139p. Available from: <https://biblioteca.ibge.gov.br/index.php/biblioteca-catalogo?view=detalhes&id=2101846>
- 4 Organização das Nações Unidas. Convenção sobre os Direitos das Pessoas com Deficiência. 2006, Nova Iorque: ONU. [https://www.planalto.gov.br/ccivil\\_03/\\_ato2007-2010/2009/decreto/d6949.htm](https://www.planalto.gov.br/ccivil_03/_ato2007-2010/2009/decreto/d6949.htm)
- 5 Organização Mundial de Saúde. Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF). 2008, São Paulo: USP. [https://apps.who.int/iris/bitstream/handle/10665/42407/9788531407840\\_por.pdf?sequence=111](https://apps.who.int/iris/bitstream/handle/10665/42407/9788531407840_por.pdf?sequence=111)
- 6 Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Política Nacional de Saúde da Pessoa Portadora de Deficiência / Ministério da Saúde, Secretaria de Atenção à Saúde – Brasília: Editora do

Ministério da Saúde, 2008. 72 p. (Série E. Legislação em Saúde) Available from: [https://bvsms.saude.gov.br/bvs/publicacoes/politica\\_nacional\\_saude\\_pessoa\\_deficiencia.pdf](https://bvsms.saude.gov.br/bvs/publicacoes/politica_nacional_saude_pessoa_deficiencia.pdf)

7 Trigueiro L, Lucena N, Aragão P, Lemos M. Perfil sociodemográfico e índice de qualidade de vida de cuidadores de pessoas com deficiência física. *Fisioter Pesqui.* 2011; 18(3). DOI: <https://doi.org/10.1590/S1809-29502011000300004>

8 Padilha BW, Carrasco AC, Binda AC, Fréz AR, Bim CR. Qualidade de vida e sobrecarga de cuidadores de deficientes físicos. *R bras qual vida.* 2017; 9(1). DOI: <http://dx.doi.org/10.3895/rbqv.v9n1.5078>

9 Gugala B, Penar-Zadarko B, Pieciak-Kotlarz D, Wardak K, Lewicka-Chomont A, Futyma-Ziaja M, Opara, J. Assessment of anxiety and depression in polish primary Parental caregivers with cerebral palsy compared group, as well as identification of selected predictors. *Int J Environ Res Pub Health.* 2019; 16(21). DOI: <https://dx.doi.org/10.3390%2Fijerph16214173>

10 Áfio ACE, Balbino AC, Alves MDS, Carvalho LV, Santos MCL, Oliveira NR. Análise do conceito de tecnologia educacional em enfermagem aplicada ao paciente. *Rev Rene.* 2014; 15(1). DOI: <https://doi.org/10.15253/2175-6783.2014000100020>

11 Nietzsche EA, Backes VMS, Colomé CLM, Ceratti RN, Ferraz F. Tecnologias educacionais, assistenciais e gerenciais: uma reflexão a partir da concepção dos docentes de enfermagem. *Rev Latino-Am Enfermagem [online].* 2005; 13(3). DOI: <https://doi.org/10.1590/S0104-11692005000300009>

12 Fernandes CS, Angelo M. Family caregivers: what do they need? An integrative review. *Rev Esc Enferm USP.* 2016;50(4). DOI: <http://dx.doi.org/10.1590/S0080-623420160000500019>

13 Silva MS, Schardosim LR, Milbrath VM, Gabatz RIB, Vaz JC. São duas vidas em uma só: rotina do cuidador da pessoa com paralisia cerebral. *Enfermagem Revista.* 2019; 22(2), DOI: <http://periodicos.pucminas.br/index.php/enfermagemrevista/article/view/21075/15180>

14 Spinazola CC, Cia F, Azevedo TL, Gualda DS. Crianças com deficiência física, síndrome de down e autismo: Comparação de características familiares na perspectiva materna na realidade brasileira. *Rev Bras Ed Esp.* 2018; 24(2), DOI: <http://dx.doi.org/10.1590/S1413-65382418000200004>

15 Ercole FF, Melo LSD, Alcoforado CLGC. Integrative review versus systematic review. *Reme.* 2014;18(1). DOI: <http://doi.org/10.5935/1415-2762.20140001>

16 Sousa LMM, Marques- Vieira CMA, Severino SSP, Antunes AV. A metodologia de revisão integrativa da literatura em enfermagem. *RIE,* 2017; 17(26) DOI: <http://hdl.handle.net/20.500.12253/1311>

17 Biruel EP, Pinto R. Bibliotecário: um profissional a serviço da pesquisa. In *Anais do XXIV Congresso Brasileiro de Biblioteconomia, documentação e Ciência da Informação* (pp. 330-333), 2011, Maceió, AL: Universidade Federal de Alagoas. Available to: [https://www.academia.edu/9594560/Bibliotec%C3%A1rio\\_um\\_profissional\\_a\\_servi%C3%A7o\\_da\\_pesquisa](https://www.academia.edu/9594560/Bibliotec%C3%A1rio_um_profissional_a_servi%C3%A7o_da_pesquisa)

18 Pavão SL, Silva FPS, Rocha NAC. Efeito da orientação domiciliar no desempenho funcional de crianças com necessidades especiais. *Motricidade.* 2011; 7(1) DOI: [https://www.revistamotricidade.com/arquivo/2011\\_vol7\\_n1/v7n1a04.pdf](https://www.revistamotricidade.com/arquivo/2011_vol7_n1/v7n1a04.pdf)

19 Benn R, Akiva T, Arel S, Roeser RW. Mindfulness training effects for parents and educators of children with special needs. *Dev Psychol.* 2012, 48(5). DOI: <https://doi.org/10.1037/a0027537>

- 20 Cardoso AMR, Felipe ACM, Nunes FMR, Padilha WWN. Programa de saúde bucal domiciliar para crianças e adolescentes com paralisia cerebral. *Pesq Bras Odontoped Clin Integr*, 2012; 12(1). DOI: <https://doi.org/10.4034/PBOCI.2012.121.20>
- 21 Carvalho APC, Chiari BM, Gonçalves MIR. Impacto de uma ação educativa na alimentação de crianças neuropatas. *CoDAS*; 2013; 25(5). DOI: <https://doi.org/10.1590/S2317-17822013005000004>
- 22 Limongi V, Lima-Alvarez CD, Cunha AB, Tudella E. Impacto de um programa de orientações aos cuidadores nas habilidades funcionais, nível de assistência do cuidador e modificações do ambiente em crianças com limitações neuromotoras. *Temas sobre Desenvolvimento*. 2013; 19(106):188-204. Available from: [https://www.researchgate.net/publication/260202855\\_Impacto\\_de\\_um\\_programa\\_de\\_orientacoes\\_aos\\_cuidadores\\_nas\\_habilidades\\_funcionais\\_nivel\\_de\\_assistencia\\_do\\_cuidador\\_e\\_modificacoes\\_do\\_ambiente\\_em\\_crianças\\_com\\_limitacoes\\_neuromotoras/citations](https://www.researchgate.net/publication/260202855_Impacto_de_um_programa_de_orientacoes_aos_cuidadores_nas_habilidades_funcionais_nivel_de_assistencia_do_cuidador_e_modificacoes_do_ambiente_em_crianças_com_limitacoes_neuromotoras/citations)
- 23 Lazcano FM, Curab MA, Arandaa JMR, Herasa HR, Elizondoa TG Barrón Garzac FB. Impacto de una intervención psicosocial en la carga del cuidador de niños con parálisis cerebral. *Aten Primaria*. 2014;46(8). DOI: <http://dx.doi.org/10.1016/j.aprim.2013.12.005>
- 24 Oliveira DM, Rena PBO, Mendonça ETM, Pereira ET, Jesus MCP Merighi MAB. O grupo operativo como instrumento de aprendizagem do cuidado por mães de filhos com deficiência. *Esc Anna Nery*. 2016;20(3):e20160077 DOI: <https://doi.org/10.5935/1414-8145.20160077>
- 25 Andrade MMG, Elpídio de Sá F, Frota LMCP, Cardoso KVV Carleial GMA. Interventions of health education in mothers of children with cerebral palsy. *J Hum Growth Dev*. 2017; 27(2). DOI: <http://dx.doi.org/10.7322/jhgd.126857>
- 26 Martins JS, Sandoval RA. Influência de um programa de orientação fisioterapêutica no saber de cuidadores de crianças com paralisia cerebral. *RESAP*. 2017;3(2). DOI: <https://www.revista.esap.go.gov.br/index.php/resap/article/download/47/62/166#:~:text=Um%20programa%20de%20orienta%C3%A7%C3%A3o%20fisioterap%C3%AAutica%20pode%20ser%20eficaz%20uma%20vez,o%20desenvolvimento%20neuropsicomotor%20da%20crian%C3%A7a>.
- 27 Borek AJ, McDonald B, Fredlund M, Bjornstad G, Logan S, Morris C. Healthy parent carers programme: development and feasibility of a novel group-based health-promotion intervention. *BMC Public Health*. 2018; 18(270). DOI: <https://doi.org/10.1186/s12889-018-5168-4>
- 28 Lima PS, Blanes L, Ferreira LM, Gomes HFC. Manual educativo de cuidados à criança com gastrostomia: construção e validação. *REME*. 2018. 22:e-1123. DOI: <https://doi.org/10.5935/1415-2762.20180068>
- 29 Zuurmond M, O'Banion D, Gladstone M, Carsamar S, Kerac M, Baltussen M, Tann CJ, Nyante, GG, Polack, S. Evaluating the impact of a community-based parent training programme for children with cerebral palsy in Ghana. *PLoS ONE*. 2018; 13(9): e0202096. DOI: <https://doi.org/10.1371/journal>
- 30 Van Aswegen T, Myezwa H, Potterton J, Stewart A The effect of the Hambisela programme on stress levels and quality of life of primary caregivers of children with cerebral palsy: A pilot study. *South African Journal of Physiotherapy*. 2019; 75(1). DOI: <https://doi.org/10.4102/sajp.v75i1.461>
- 31 Caldas ACS, Dias, RS, Sousa SMA, Teixeira E. Produção sensível e criativa de tecnologia cuidadoso-educacional para famílias de crianças com gastrostomia. *Esc Anna Nery*. 2019;23(1):e20180144. DOI: <https://doi.org/10.1590/2177-9465-EAN-2018-0144>

- 32 Souza JS, Knobel KAB. Guia ilustrado de orientações a cuidadores de crianças com deficiências neuromotoras. ConScientiae Saúde, 2019; 18(1). DOI: <https://doi.org/10.5585/ConsSaude.v18n1.8617>.
- 33 Zuurmond M, Nyante G, Baltussen M, Seeley J, Abanga J, Shakespeare T, Collumbien, M, Bernays, S. A support programme for caregivers of children with disabilities in Ghana: Understanding the impact on the wellbeing of caregivers. Child Care Health Dev. 2019; 45. DOI: <https://doi.org/10.1111/cch.12618>
- 34 Bunning K, Gona JK, Newton CR, Andrews F, Blazey C, Ruddock H, Henery J, Hartley S. Empowering self-help groups for caregivers of children with disabilities in Kilifi, Kenya: impacts and their underlying mechanisms. PLoS ONE. 2020; 15 (3): e0229851. DOI: <https://doi.org/10.1371/journal>
- 35 Oliveira NLL, Barbosa EMG, Pitombeira MGV, Chaves EMM, Carvalho REFL. Tecnologia educativa para cuidadores de crianças e adolescentes dependentes de cuidados especiais no domicílio. Rev. Eletr. Enferm. [Internet]. 2020; 22:56051. DOI: <https://doi.org/10.5216/ree.v22.56051>
- 36 Precce ML, Moraes JRMM. Processo educativo com familiares de crianças com necessidades especiais de saúde na transição hospital-casa. Texto Contexto Enferm. 2020; 29:e20190075. DOI: <https://doi.org/10.1590/1980-265X-TCE-2019-0075>
- 37 Rodrigues LN, Santos AS, Gomes PPS, Silva WCP, Chaves EM. Construction and validation of an educational booklet on care for children with gastrostomy. Rev Bras Enferm. 2020;73(3):e20190108. DOI: <http://dx.doi.org/10.1590/0034-7167-2019-0108>
- 38 Silva APM, Pina JC, Rocha PK, Anders JC, Souza AIJ, Okido ACC. Capacitação de cuidadores de crianças com necessidades especiais de saúde: contribuições da simulação. Texto Contexto Enferm. 2020; 29: e20180448. DOI: <https://doi.org/10.1590/1980-265X-TCE-2018-0448>
- 39 Wingo BC, Yang D, Davis D, Hopson B, Thirumalai M, Rimmer JH. Lessons learned from a blended telephone/e-health platform for caregivers in promoting physical activity and nutrition in children with a mobility disability. Disabil Health J. 2020; 13(1): 100826. DOI: <http://doi.org/10.1016/j.dhjo.2019.100826>
- 40 Bem JSP, Santos DCG, Lima MG, Nascimento LJ, Veras SRA, Silva BYB. Effectiveness and legitimacy of the motivational interviewing with caregivers on the oral health of special patients. Int. J. Odontostomat. 2021; 15(2). DOI: <http://www.ijodontostomatology.com/en/articulo/effectiveness-and-legitimacy-of-the-motivational-interviewing-with-caregivers-on-the-oral-health-of-special-patients/>
- 41 Marella M, Koolmees D, Vongvilay C, Frank B, Pryor W, Smith F. Development of a digital case management tool for community based inclusive development program. Int J Environ Res Public Health. 2021, 18 (11000). DOI: <https://doi.org/10.3390/ijerph182011000>
- 42 Soares AC, Rêgo AS, Rodrigues TFCS, Cardoso LCB, Rossaneis MA, Carreira L, et al. Construction and validation of self-care educational technology for informal caregivers. Rev Bras Enferm. 2021;74(4): e20200215. DOI: <https://doi.org/10.1590/0034-7167-2020-0215>
- 43 Moura RMG, Neto URM. As tecnologias educacionais em saúde na promoção e proteção do aleitamento materno. REAS/EJCH. 2020; 12(10). DOI: <https://doi.org/10.25248/reas.eXX.2019>
- 44 Araújo KC, Souza AC, Silva AD, Weis AH. Tecnologias educacionais para abordagens de saúde com adolescentes: revisão integrativa. Acta Paul Enferm. 2022;35:eAPE003682. DOI: <http://dx.doi.org/10.37689/acta-ape/2022AR03683>

- 45 Martins RMG, Dias ÍKR, Sobreira CLS, Santana KFS, Rocha RMGS, Lopes MSV. Desenvolvimento de uma cartilha para promoção do autocuidado na hanseníase. Rev enferm UFPE on line. 2019;13:e239873 DOI: <https://doi.org/10.5205/1981-8963.2019.239873>
- 46 Maniva SJCF, Carvalho ZMF, Gomes RKG, Carvalho REFL, Ximenes LB, Freitas CHA. Educational technologies for health education on stroke: an integrative review. Rev Bras Enferm. 2018; 71(Suppl 4):1724-31. DOI: <http://dx.doi.org/10.1590/0034-7167-2017-0041>
- 47 Soares PS, Smeha, LN, Martins, JS, Michaelsen, TS, Abaid, JLW. Maternidade e paralisia cerebral: construção de um material psicoeducativo. Revista Desafios. 2018; 5(3). DOI: <http://dx.doi.org/10.20873/uft.2359-3652.2018v5n3p>
- 48 Martins R, Santos C. Capacitação do cuidador informal: o papel dos enfermeiros no processo de gestão da doença. Gestão e desenvolvimento. 2020; 28. DOI: <https://doi.org/10.34632/gestaoedesenvolvimento.2020.9468>
- 49 Fonseca LMM, Leite AM, Mello DF, Silva MAI, Lima RAG, Scochi CGS. Tecnologia educacional em saúde: contribuições para a enfermagem pediátrica e neonatal. Esc Anna Nery. 2011; 15(1):190-6.
- 50 Martins R, Santos C. Capacitação do cuidador informal: o papel dos enfermeiros no processo de gestão da doença. Gestão e desenvolvimento. 2020; 28(1). DOI: <https://doi.org/10.34632/gestaoedesenvolvimento>
- 51 Miot HA. Tamanho da amostra em estudos clínicos e experimentais. J. vasc. bras. 2011; 10(2). DOI: <https://doi.org/10.1590/S1677-54492011000400001>
- 52 Rego A, Cunha MP, Meyer Júnior, V. Quantos participantes são necessários para um estudo qualitativo? Linhas práticas de orientação. Ver Gestão dos Países de Língua Portuguesa. 2018; 17(2). DOI: <https://doi.org/10.12660/rgplp.v17n2.2018.78224>
- 53 Silva ELMS, Góes PSA, Vasconcelos MMVB, Jamelli SR, Eickmann SH, Melo MMDC, Lima MC. Cuidados em saúde bucal a crianças e adolescentes com paralisia cerebral: percepção de pais e cuidadores. Cien Saude Colet. 2020;25(10). Available: <http://cienciaesaudecoletiva.com.br/artigos/cuidados-em-saude-bucal-a-criancas-e-adolescentes-com-paralisia-cerebral-percepcao-de-pais-e-cuidadores/17116?id=17116>
- 54 Andrade MMG, Elpídio de Sá F, Frota LMCP, Cardoso KVV Carleial GMA. Interventions of health education in mothers of children with cerebral palsy. J Hum Growth Dev. 2017; 27(2). DOI: <http://dx.doi.org/10.7322/jhgd.126857>
- 55 Silva MS, Schardosim LR, Milbrath VM, Gabatz RIB, Vaz JC. São duas vidas em uma: a rotina do cuidador da pessoa com paralisia cerebral. Enferm Rev. 2019; 22(2), DOI: <http://periodicos.pucminas.br/index.php/enfermagemrevista/article/view/21075>
- 56 Freitag VL, Milbrath VM, Motta, MGC. Mãe-cuidadora de criança/adolescente com paralisia cerebral: o cuidar de si. Enferm Glob. 2018; 50. DOI: <http://dx.doi.org/10.6018/eglobal.17.2.265821>
- 57 Dutra HS, Reis VN. Desenhos de estudos experimentais e quase-experimentais: definições e desafios na pesquisa em enfermagem. Rev enferm UFPE on line. 2016; 10(6). DOI: <https://doi.org/10.5205/reuol.9199-80250-1-SM1006201639>
- 58 Freitas PM, Dias CLA, Carvalho RCL, Haase VG. Efeitos de um programa de intervenção cognitivo-comportamental para mães de crianças com paralisia cerebral., R. Interam. Psicol. 2008; 42(3). DOI: [http://pepsic.bvsalud.org/scielo.php?script=sci\\_arttext&pid=S0034-96902008000300018](http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S0034-96902008000300018)

59 Pinto LF, Rocha CMF. (2016). Inovações na atenção primária em saúde: o uso de ferramentas de tecnologia de comunicação e informação para apoio à gestão local. Ciênc saúde coletiva. 2016; 1(5).

DOI: <https://doi.org/10.1590/1413-81232015215.26662015>

60 Klüsener RDCR, Bandini HHM, Ferreira ACRG, Santos AA. Structuring an educational video: care for children with disabilities. Braz J Dev. 2022; 8(2). DOI: <https://doi.org/10.34117/bjdv8n2-099>

61 Crestani AH, Moraes AB, Souza APR. Validação de conteúdo: clareza/pertinência, fidedignidade e consistência interna de sinais enunciativos de aquisição da linguagem. CoDAS. 2017; 29(4). DOI:

<https://doi.org/10.1590/2317-1782/201720160180>

62 Franco CSB, Martins EJ, Davoli GBQ, Petian-Alonso DC, Pereira KVR, Sverzut ACM. Validação de conteúdo e análise da adesão ao uso da cartilha “Orientações para a manutenção da qualidade de vida – espinha bífida” em crianças e adolescentes deambuladores e não deambuladores com espinha bífida. Rev Med, 2022, 101(5). DOI: <http://dx.doi.org/10.11606/issn.1679-9836.v101i5e193651>

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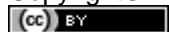
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